

INDEX TO VOLUME 30

NOTE.

1. Names of authors, meetings, discussions, reports, etc., are in CAPS and SMALL CAPS.
2. Titles of papers are in *Italics*.
3. The Society is not responsible as a body for the statements of fact or opinion in its papers and discussions.

	PAGE
Aërial locomotion in warfare.....	680
Aéroplanes.....	665
Design of.....	668
ANNUAL MEETING, NEW YORK.....	515
Program, 517; President's address, 517; Honorary membership conferred on Dr. BRASHEAR, 517; Professional session, 517; Steam and power plants, 518; Aëronautics, 518, 529; Machine shop practice, 519; Gas Power Section, 520; Reception, 520; Experimental data, 520; Committees, 521; Running account, 523; Society affairs, 536.	
ANNUAL REPORTS OF THE COUNCIL AND COMMITTEES, 1908.	
Report of council.....	537
Reports of standing committees.....	542
Finance committee.....	542
Meetings committee.....	548
Membership committee.....	550
Publication committee.....	552
Library committee.....	553
Special committees.....	556
Appendix to reports.....	561-563
Amendments to by-laws and rules.....	569
Elections to membership.....	573
Apparatus for determining the specific heat of vapors.....	726
APRIL, MONTHLY MEETING.....	13
<i>Articulated Compound Locomotives</i> , C. J. MELLIN, 985, see <i>Locomotives</i> , etc.	
DISCUSSION.	
COLE, F. J.....	1018
EMERSON, H.....	1021
POMEROY, L. R.....	1022
FOWLER, G. L.....	1023
HENDERSON, G. R.....	1024
LOVELL, A.....	1024
VAUCLAIN, S. M.....	1026
EMERSON, G. H.....	1029
Closure.....	1035
ATWATER, C. G., disc., <i>The By-Product Coke Oven</i>	416

	PAGE
Automatic system for elimination of losses in firing of fuel oil, see <i>Fuel Oil</i> , etc.....	797
Averaging Instrument for Polar Diagrams, PROF. W. F. DURAND, see <i>Polar Diagrams</i> , etc.....	1201
Aviation.....	665
BAILEY, W. H.: Obituary.....	1207
BALDWIN, C. K., <i>The Belt Conveyor</i> ,.....	187
See <i>Belt Conveyor</i> .	
BARBER, C. M., disc., <i>The By-Product Coke Oven</i>	413
BARRUS, G. H., disc., <i>Fuel Economy Tests</i> , and <i>Unnecessary Losses in Firing Fuel Oils</i>	819
Bearing tests on journal friction measuring machine.....	341
Bee-hive oven.....	388
BELLMAN, J. J., disc., <i>Clutches</i>	80
<i>Belt Conveyor, The</i> , C. K. BALDWIN.....	189
Early history.....	187
Belts.....	191
Driving machinery.....	195
Discharging devices.....	198
Cleaning belts.....	200
Chutes and feeders.....	200
Capacity.....	201
Speed and size of belts.....	202
Power required.....	202
Arrangement of conveyors.....	204
DISCUSSION, see <i>Conveying Materials</i> .	
Belt conveyors.....	1076
<i>Belt Conveyors</i> , EDWIN J. HADDOCK.....	217
Effect of changing diameter of driving pulley.....	219
Effect of varying arcs of contact.....	220
Effect of initial tension.....	221
Relative value of rubber-faced vs. iron-faced pulleys.....	223
Formulae for average horsepower.....	229
BENJAMIN, PROF. C. H., disc., <i>The Slipping Point of Rolled Boiler Tube Joints</i> , 1196; disc., <i>A Journal Friction Measuring Machine</i>	346
BIBBINS, J. R., disc., <i>The By-Product Coke Oven</i> , 410; disc., <i>Fuel Economy Tests</i> , and <i>Unnecessary Losses in Firing Fuel Oils</i>	822
BILLINGS, F. C., disc., <i>Clutches</i>	99
BINSSE, H. B., disc., <i>Industrial Photography</i>	1104
BIOGRAPHY.	
MINARD LAFEVER HOLMAN.....	1
BLAUVELT, W. H., <i>The By-Product Coke Oven</i> , 385; disc.....	410
<i>Boiler Tube Joints, Rolled, Slipping Point of</i> , PROF. O. P. HOOD and PROF. G. L. CHRISTENSEN.....	1181
BRASHEAR, PROF. J. A., <i>Contribution of Photography to our Knowledge of Stellar Evolution</i> , abstract, 108; disc., <i>A Journal Friction Measuring Machine</i> , 346; disc., <i>The Present Status of Military Aeronautics</i>	718

	PAGE
BRISLEY, E. B.: Obituary	1207
BRYAN, WM. H., <i>Identification of Power House Piping by Colors</i>	109
BURLINGAME, LUTHER D., disc., <i>Comparison of Screw Thread Standards</i> , 375; Comparative table of pitches (Table 1), 378; disc., <i>Interchangeable Invo-</i> <i>lute Gear Tooth Systems</i>	942
BUSINESS MEETING.	
Detroit	107-110
New York	525
By-Product Coke Oven, W. H. BLAUVELT	385
See Coke Oven, etc.	
DISCUSSION.	
BIBBINS, J. R.	410
BARBER C. M.	413
ATWATER, C. G.	416
FERNALD, PROF. R. H.	419
PARKER, J. C.	419
RATHBUN, G. J.	420
Closure	420
CAKE, H. W.: Obituary	1208
Calorimeter, A Continuous Gas, C. E. LUCKE	27
Junkers gas calorimeter	29
Schutte and Koerting calorimeters	33
Sargent calorimeter	34
Doherty calorimeter	35
Author's arrangement of the Junkers calorimeter	36
CANET, G.: Obituary	1208
Carbonic Acid, <i>Physical Properties and the Conditions of its Economic Storage</i> <i>for Transportation</i> , PROF. R. T. STEWART ..	1111
Direct or physical method	1113
Indirect or chemical method	1114
Comparison of two methods	1115
Experiments with carbonic acid	1117
Three states of carbonic acid	1127
Combined density of the liquid and saturated vapor	1129
Cylinder volume occupied by liquid	1131
Tables and curves	1133-1144
Storage of carbonic acid	1144
Water jacket	1145
Sample selection	1145
Pressure regulator	1147
Pressure gage	1149
Weighing cylinders and acid	1149
Water capacity of cylinder	1150
Design of cylinders	1150
CARHART, A. B., disc., <i>Development of a High Speed Milling Cutter with In-</i> <i>serted Blades, etc.</i>	889
Car Lighting, R. M. DIXON	11

	PAGE
CARNEGIE, ANDREW, Honorary Membership conferred on.....	5
<i>Cement Plant, Conveying Machinery in the Portland, C. J. TOMLINSON.</i>	
<i>See Conveying Machinery in the Portland Cement Plant.</i>	
CHICKERING, K.: Obituary.....	1210
Chip lifter and chip control in cutting tools.....	904
CHRISTENSEN, PROF. G. L., <i>Slipping Point of Rolled Boiler Tube Joints</i> , 1181; disc.....	1194
CHURCH, A. L., disc., <i>The Engineer and the People</i>	635
CHURCH, PROF. I. P., disc., <i>The Surge Tank in Water Power Plants</i>	484
CLARKE, G., disc., <i>Carbonic Acid and its Storage</i>	1173
Clausius and Rankine cycles compared.....	821
Clearance in cutting tools.....	902
Clutches, HENRY SOUTHER.....	39
Positive.....	39
Friction.....	40
Machine shop.....	43
Used in wire drawing.....	45
Small, with cork friction surface.....	48
Automobile.....	49
Comparative tests of loom.....	50
Cone.....	53
Expanding band.....	59
Contracting band.....	61
Disc.....	62
Multidisc.....	65
V-shaped discs.....	66
Hele-Shaw.....	68
Hydraulic.....	70
DISCUSSION.....	
GABRIEL, C. R.....	71
Fowler press.....	72
Stiles clutch.....	72
Johnson clutch.....	73
Bliss clutch.....	74
Positive multiple jawed clutch.....	75
Friction clutch for large presses.....	75
GAY, R. M.....	77
MILLER, F. J.....	78
Miller clutch.....	79
MCCLELLAN, E. J.....	79
BELLMAN, J. J.....	80
GRAY, B. D.....	82
MOSSBERG, FRANK.....	83
Sliding key clutch.....	84
Stiles and Fladd clutch.....	85
Ferracute clutch.....	86
Mossberg clutch.....	86
Horton clutch.....	87
Applied to power press.....	88

	PAGE
NEFF, ELMER H.	90
Friction pulleys.	91
For automatic screw machines.	93
RICE, CHARLES D.	94
Clutch with wooden friction blocks.	95
HUNT, CHARLES WALLACE	96
Friction clutches.	96
BILLINGS, F. C.	99
Cone clutches.	99
WALDRON, FREDK. A.	100
Multiple disc clutch	101
MAXIM, HIRAM PERCY.	102
Metal-to-metal clutch	103
JONES, FOREST R.	105
<i>Coke Oven, The By-Product, W. H. BLAUVELT.</i>	385
Production of coke.	386
Retort oven and beehive oven.	387, 388
Coke stamper and coke pusher.	396
Otto oven.	398
Semet-Solvay oven.	399
Rothberg oven.	399
Kopper's oven.	399
Coke production	386
Coke stamper and pusher.	396
COLE, F. J., disc., <i>Articulated Compound Locomotives</i>	1018
COMMITTEES, REPORTS OF	542
See ANNUAL REPORTS, ETC.	537
COMMITTEES, SPECIAL, PERSONNEL OF.	VI
COMMITTEES, STANDING, PERSONNEL OF.	V
<i>Comparison of Screw Thread Standards, AMASA TROWBRIDGE.</i>	373
See <i>Screw Threads, etc.</i>	
DISCUSSION.	
BURLINGAME, LUTHER D.	375
HALSEY, F. A.	379
PORTER, CHAS. T.	380
Closure.	384
<i>Compound Locomotives, Articulated, C. J. MELLIN.</i>	985
<i>Condensers, Air Leakage in Steam, THOS. C. McBRIDE.</i>	110
<i>Conical Pistons, a Rational Method of Checking for Stress, PROF. GEO. H. SHEPARD.</i>	321
Calculated stresses for conical pistons (Table 1).	326
<i>Conservation Idea as Applied to the American Society of Mechanical Engineers, M. L. HOLMAN, President's address, 1908.</i>	577
Fundamental constants.	580
Health.	583
Food.	585
Land.	586
Forest.	590

<i>Conservation Idea—Continued.</i>	PAGE
Water	592
Swamp lands	601
Power: water	601
Power: coal	603
Mineral resources	615
Conclusion	616
<i>Conservation of the Nation's Fuel Supply, DR. W. F. M. GOSS, abstract of address.</i>	16
<i>Conservation of our Natural Resources:</i>	
Abstract of addresses by DR. W. J. MCGEE, 15; DR. W. F. M. GOSS, 16; PROF. GEO. F. SWAIN, 20; DR. HENRY S. PRITCHETT,	23
<i>Conservation problem momentous.</i>	623
<i>Conservation of Stream Flow, Water Power and Navigation, PROF. GEO. F. SWAIN, abstract of address.</i>	20
<i>Conservation of the Waters and Woods, W. J. MCGEE, abstract of address.</i>	15
<i>Continuous Gas Calorimeter, A., DR. C. E. LUCKE.</i>	27
<i>DISCUSSION.</i>	
DOHERTY, H. L.	37
Closure	38
<i>Conveying Machinery in the Portland Cement Plant, C. J. TOMLINSON.</i>	213
Belt conveyor	213
Screw conveyor	215
Chain and bucket elevator	215
Pivoted bucket conveyor	215
<i>DISCUSSION.</i>	
See disc. <i>Conveying Materials.</i>	233
<i>Conveying Materials:</i>	
<i>PAPERS.</i>	
<i>Hoisting and Conveying Machinery, G. E. TITCOMB.</i>	123
<i>Continuous Conveying of Materials, S. B. PECK.</i>	155
<i>Belt Conveyor, C. K. BALDWIN.</i>	187
<i>Conveying Machinery in a Portland Cement Plant, C. J. TOMLINSON.</i>	213
<i>Performance of Belt Conveyors, E. J. HADDOCK.</i>	217
<i>Conveying of Materials, The:</i>	
<i>DISCUSSION.</i>	
MILLER, SPENCER	233
PATTISON, MELVIN	234
WILLCOX, GEO. B.	239
PIEZ, CHARLES	241
BENNETT, T. A.	246
MESSITER, E. H.	250
CARPENTER, PROF. R. C.	252
FICKES, E. S.	253
THOMAS, E. G.	255
HIBBARD, PROF. H. W.	257
McGEORGE, J.	258
DONNELLY, WM. T.	259
SUPLEE, H. H.	260

Conveying of Materials—Continued

	PAGE
KENT, PROF. WM.	260
PROAL, A. B.	260
TITCOMB, G. E.	261
PECK, S. B.	262
TOMLINSON, C. J.	264
BALDWIN, C. K.	266
PECK, S. B.	155
Chain conveyors	155
Flight conveyors, conveying capacities (Table)	159
Elevator conveyors	160
Spiral conveyors	161
Belt conveyors	162
Apron and bucket conveyors	167
Merchandise carriers	173
Chains	174
Applications of conveyors	177
<i>Conveyors, Belt, see Belt Conveyors.</i>	
Conveyors, Belt and Reciprocating	1076, 1077
COOKE, M. L., <i>A Plan for a Larger Coöperation between the Society and the General Public</i> , 619; disc.	628
<i>Coöperation between the Society and the General Public, A Plan for</i> , M. L. COOKE	619
The engineer as a conservator	620
The object of the Society	620
Popular lectures on engineering	621
Necessity for molding public opinion	623
Momentous conservation problem	623
Public matters	624
Awakening in medical profession	625
Experimental work needed	627
CORBIN, G. W.: Obituary	1210
COUNCIL REPORTS	
See ANNUAL REPORTS, etc	537
Cox, S. B.: Obituary	1211
Critical state of water	282
<i>Cutting Tools, Metal, without Clearance</i> , J. HARTNESS	895
Type of tool	897
Means for improving efficiency	898
Cutting stress	898
Separating stress	900
Quivering stress	900
Destructive effects of heat, etc.	901
Clearance	902
No-clearance tool	902
Chip lifter and chip control	904
Damper controller	810
DAVIS, DR. H. N., disc., <i>A Method of Obtaining Ratios of Specific Heats of Va-</i>	

	PAGE
... pors, 735; disc., <i>Thermal Properties of Superheated Steam</i> , 314; Summary (Table 1), 316, 317; <i>The Total Heat of Saturated Steam</i> , 741, disc.	751
Davis formula for total heat of saturated steam.	749, 753
DAY, F. M., disc., <i>The Engineer and the People</i>	632
Day work and piece work.	1045
DEAN, F. W., and A. C. WOOD, <i>Economy Tests of High Speed Engines</i>	109
DE LEEUW, A. L., disc., <i>Development of a High Speed Milling Cutter with Inserted Blades, etc.</i> , 887; disc., <i>Interchangeable Involute Gear Tooth Systems</i> , 963; <i>Efficiency Tests of Milling Machines and Milling Cutters</i> , 837; disc.	859
DETROIT MEETING 107: Program, 107; Running account of, 110; Gas power session, 109, 115; Conveying materials, symposium, 108, 112; Business meeting, 107, 110; Entertainment at, 118; Election of members.	120
<i>Development of a High Speed Milling Cutter, with Inserted Blades, for High Powered Milling Machines</i> , W. LEWIS and W. H. TAYLOR.	869
See <i>Milling Machines, etc.</i>	837
DISCUSSION.	
MILLER, F. J.	885, 891
SMITH, O.	885, 888
TAYLOR, F. W.	886, 889, 890
DE LEEUW, A. L.	887
CARHART, A. B.	889
STEWART, PROF. R. T.	889, 890
WEBB, PROF. J. B.	891
Closure.	892
Differential regulator in water-power plants.	457
Dirigible balloons in France, England, Germany and the United States	642, 650, 652, 657
Design of.	659
DIXON, R. M., <i>Car Lighting</i>	11
DODGE, A. R., <i>A Method of Obtaining Ratios of Specific Heats of Vapors</i> , 723, disc.	735
DODGE, J. M., disc., <i>The Engineer and the People</i> , 635; <i>Training Workmen in Habits of Industry and Cooperation</i>	1062
DOHERTY, HENRY L., disc., <i>A Continuous Gas Calorimeter</i>	37
DURAND, PROF. W. F., <i>An Averaging Instrument for Polar Diagrams</i>	1201
EBERHARDT, E. G.: Obituary.	1211
EDDY, DR. H. T., disc., <i>Thermal Properties of Superheated Steam</i> , 299; Calculated results compared with THOMAS (Table 1), 301; Values of C_p (Table 2) 302; Values of C_p (Table 3), 303; Comparison of results of Knoblauch and Jacob (Table 4), 305; Summary, 308; disc., <i>Some Pitot Tube Studies, Efficiencies, Horsepower and Friction Losses in Gas and Oil Engines</i> , PROF. L. S. MARKS.	423
Efficiency of cutters.	855
Efficiency of driving mechanism of milling machines.	853
<i>Efficiency Tests of Milling Machines and Milling Cutters</i> , A. L. DE LEEUW.	837
See <i>Milling Machines, etc.</i>	

DISCUSSION.	PAGE
MILLER, F. J.	859
LEWIS, W.	861
TAYLOR, W. H.	861
TAYLOR, F. W.	863
FLATHER, PROF. J. J.	864
Closure.	866
Electric Power Plant, Burning Oil.	
See <i>Fuel Economy Tests, etc.</i>	775
EMERSON, G. H., disc., <i>Articulated Compound Locomotives</i>	1029
EMERSON, H., disc., <i>Articulated Compound Locomotives</i> , 1021; disc., <i>Training Workmen in Habits of Industry and Coöperation</i>	1060
Engineer as a conservator.	620
Engineers' Club, Inaugural Banquet, 5; Address by ANDREW CARNEGIE, 5; JOHN FRITZ conferring honorary membership in the A. S. M. E., 6; SAMUEL L. CLEMENS (MARK TWAIN), 6; JOHN FOORD, WM. H. FLETCHER, 6; T. C. MARTIN, Toastmaster.	5
<i>Engines, High Speed, Economy Tests of</i> , F. W. DEAN and A. C. WOOD.	109
ENNIS, PROF. W. D., disc., <i>Fuel Economy Tests</i> , and <i>Unnecessary Losses in Firing Fuel Oils</i> , 821; disc., <i>The Total Heat of Saturated Steam</i> , 756; disc., <i>Thermal Properties of Superheated Steam</i> , 309; Demonstration of Rankine's Theorem, 310; Values of Specific Heat of Superheated Steam (Table 1) ...	312
FAWCUS, T., disc., <i>Interchangeable Involute Gear Tooth Systems</i>	959
FEBRUARY, MONTHLY MEETING.	11
FELLOWS, E. R., disc., <i>Interchangeable Involute Gear Tooth Systems</i>	956
FERNALD, PROF. R. H., disc., <i>The By-Product Coke Oven</i>	419
FLANDERS, R. E., <i>Interchangeable Involute Gear Tooth Systems</i> , 921; disc.	940
FLATHER, PROF. J. J., disc., <i>Efficiency Tests of Milling Machines and Milling Cutters</i>	864
Focusing, exposure, etc., in industrial photography.	1093, 1096
FORNEY, M. N.: Obituary.	1212
FOWLER, F. N.: Obituary.	1212
FOWLER, G. L., disc., <i>The Present Status of Military Aeronautics</i> , 719; disc., <i>Articulated Compound Locomotives</i>	1023
<i>Friction Journal</i> , A Measuring Machine for, H. HESS.	331
Design of.	337
Bearing tests.	341
FRITZ, JOHN, abstract of address.	5
<i>Fuel Economy Tests at a Large Oil Burning Electric Power Plant having Steam Engine Prime Movers</i> , C. R. WEYMOUTH.	775
DISCUSSION: see <i>Unnecessary Losses in Firing Fuel Oil, etc.</i>	819
Plant description.	775
Outline of tests.	778
Uniform load tests.	783
Variable load test of complete plant.	784
Operating conditions during tests.	784
Fuel oil specifications.	787
Comparison of economy with other plants.	796

	PAGE
<i>Fuel, Loss of Weight in a Freshly Charged Producer</i> , N. T. HARRINGTON . . .	511
Fuel oil specifications	787
<i>Fuel Oil, Unnecessary Losses in the Firing of, and an Automatic System for their Elimination</i> , C. R. WEYMOUTH	797
Uniform steam pressure by regulation of oil pressure	804
Steam-to-burner regulator	807
Damper controller	810
Regulators and piping arrangement	811
Operation of complete system	816
FURMAN, PROF. F. DE R., disc., <i>Spur Gearing on Heavy Railway Motor Equipments</i> , 982; disc., <i>Interchangeable Involute Gear Tooth Systems</i>	961
GABRIEL, C. R., disc., <i>Clutches</i>	71
GANTT, H. L., <i>Training Workmen in Habits of Industry and Coöperation</i> 1037; disc.	1049
<i>Gas Conduits, A Simple Method of Cleaning</i> , W. D. MOUNT	437
Ball joint for air pipe	440
<i>Gas Engine and Producer Guarantees</i> , DR. C. E. LUCKE, 12; disc.	37
<i>Gas and Oil Engines, The Horsepower, Friction Losses and Efficiencies of</i> , PROF. L. S. MARKS	423
Indicator card of steam engine	424
Indicator card of four-cycle gas engine	425
Indicator card of two-cycle gas engine	426
" " " air-pump " "	426
" " " gas " "	426
" " " crank case	427
" " " Diesel engine	427
" " " " " air compressor	428
GAS POWER SECTION:	
Formation of	11
Session at Detroit	109, 115
Officers of	VII
Committees, Personnel of	VII
GAY, R. M., disc., <i>Clutches</i>	77
GLENN, H. F.: Obituary	1213
GOSS, DR. W. F. M., <i>Conservation of the Nation's Fuel Supply</i> , abstract of address	16
Governing in water-power plants	449
GRAY, B. D., disc., <i>Clutches</i>	82
GRAY, T.: Obituary	1213
GREGORY, PROF. W. B., disc., <i>Fuel Economy Tests, and Unnecessary Losses in Firing Fuel Oils</i> , 828; <i>Some Pitot Tube Studies</i> , 351; disc.	369
GUTHRIE, HON. G. W., disc., <i>The Engineer and the People</i>	631
HADDOCK, EDWIN J., <i>Belt Conveyors</i> , see <i>Belt Conveyors</i>	217
HADLEY, DR. A. T., disc., <i>The Engineer and the People</i>	632
HALL, W. E., disc., <i>Training Workmen in Habits of Industry and Coöperation</i>	1058

	PAGE
HALSEY, F. A., disc., <i>Comparison of Screw Thread Standards</i>	379
HAMMOND, G. W.: Obituary.....	1214
HAND, S. A., <i>Industrial Photography</i> , 1087; disc.....	1103
HARRINGTON, N. T., <i>Loss of Fuel Weight in a Freshly Charged Producer</i>	511
HARTNESS, J., <i>Metal Cutting Tools without Clearance</i> , 895, disc.....	920
HARZA, L. F., disc., <i>The Surge Tank in Water-Power Plants</i>	474
HATHAWAY, H. K., disc., <i>Training Workmen in Habits of Industry and Coöper- ation</i>	1051
Heat effects in cutting tools.....	901
HECK, PROF. R. C. H., <i>Thermal Properties of Superheated Steam</i> , 277; disc., 318; disc., <i>The Total Heat of Saturated Steam</i>	757
HENDERSON, G. R., disc., <i>Articulated Compound Locomotives</i>	1024
HENSHAW, F. V., disc., <i>Spur Gearing on Heavy Railway Motor Equipments</i> ..	975
HERRMANN, FRIEDRICH GUSTAV: Obituary.....	1215
HESS, HENRY, <i>A Journal Friction Measuring Machine</i> , 331; disc.....	344
HIGGINS, M. P., disc., <i>Training Workmen in Habits of Industry and Coöper- ation</i>	1060
HILL, W. E.: Obituary.....	1217
<i>Hoisting and Conveying Machinery</i> , G. E. Titcomb.....	123
Cargo steamers and loading wharves.....	123
Ore unloading machinery.....	125
Ore stocking machinery at furnaces.....	128
Anthracite coal storage machinery.....	128
Covered anthracite storage.....	133
Bituminous coal storage machinery.....	138
Storage for locomotive coaling stations.....	141
Machinery for loading coal into vessels.....	144
Machinery for unloading coal from vessels.....	146
Variations in design, freight handling.....	151
DISCUSSION, see disc. <i>Conveying Materials</i>	
HOLLIS, PROF., I. N., disc., <i>The Total Heat of Saturated Steam</i>	766
HOLMAN, MINARD LAFEVER, Biographical sketch of.....	1
Honorary Membership, Conferring, on ANDREW CARNEGIE.....	5
HOOD, PROF. O. P., <i>Slipping Point of Rolled Boiler Tube Joints</i> , 1181; disc.	1194
<i>Horsepower, Friction Losses and Efficiencies of Gas and Oil Engines</i> , L. S. MARKS, 423; see <i>Gas and Oil Engines</i> , etc.	
DISCUSSION.	
SUPLEE, H. H.....	433
Closure.....	435
HUME, W. H.: Obituary.....	1217
HUMPHREY, DR. W. J., disc., <i>The Present Status of Military Aeronautics</i>	717
HUMPHREYS, DR. A. C., disc., <i>The Engineer and the People</i> , 628; disc., <i>Train- ing Workmen in Habits of Industry and Coöperation</i>	1049
HUNT, C. W., disc., <i>Clutches</i> , 96; disc., <i>The Engineer and the People</i> , 636; <i>Industrial Photography</i> , 1104; disc., <i>Interchangeable Involute Gear Tooth Systems</i>	947
HUTCHINGS, C. F., disc., <i>Salt Manufacture</i>	1082
HUTTON, PROF. F. R., disc., <i>The Engineer and the People</i>	636

	PAGE
Indicator cards of various engines.....	424
<i>Industrial Photography</i> , S. A. HAND.....	1087
<i>See Photography, etc.</i>	
DISCUSSION.	
WOODBURY, DR. C. J. H.....	1103
BINSSE, H. B.....	1104
HUNT, C. W.....	1104
SUPLEE, H. H.....	1106
SWASEY, A.....	1109
Closure.....	1109
<i>Interchangeable Involute Gear Tooth Systems</i> , R. E. FLANDERS.....	921
DISCUSSION.	
LEWIS, W.....	940
BURLINGAME, L. D.....	942
NISBET, D. F.....	946
HUNT, C. W.....	947
SMITH, O.....	950
RAUTENSTRAUCH, PROF. W.....	951
LOGUE, C. H.....	952
FELLOWS, E. R.....	956
FAWCUS, T.....	959
FURMAN, PROF. F. DE R.....	961
DE LEEUW, A. L.....	963
Closure.....	963
<i>Involute Gear Tooth Systems, Interchangeable</i> , R. E. FLANDERS.....	921
Effect of varying pressure angle, etc.....	922
Departures from standard forms.....	937
Comparison of involute systems.....	938
Involute systems compared.....	938
JANUARY, MONTHLY MEETING.....	11
JENNINGS, E. L.: Obituary.....	1218
JOHNSON, F. A.: Obituary.....	1218
JOHNSON, RAYMOND D., <i>The Surge Tank in Water-Power Plants</i> , 443; disc.....	474
JONES, E. H.: Obituary.....	1218
JONES, FORREST R., disc., <i>Clutches</i>	105
<i>Journal Friction Measuring Machine</i> , HENRY HESS.....	331
DISCUSSION.	
PEIRCE, J. R.....	344
BRASHEAR, PROF. J. A.....	346
BENJAMIN, PROF. C. H.....	346
Closure.....	347
JURGENSEN, J. C., disc., <i>Training Workmen in Habits of Industry and Co-operation</i>	1056
KELLY, T. F., disc., <i>Training Workmen in Habits of Industry and Coöperation</i>	1050
KENT, PROF. W., disc., <i>Carbonic Acid and its Storage</i> , 1178; disc., <i>Fuel Economy Tests and Unnecessary Losses in Firing Fuel Oils</i> , 820; disc., <i>Training Workmen in Habits of Industry and Coöperation</i>	1061

	PAGE
KISSICK, J., JR., disc., <i>Spur Gearing on Heavy Railway Motor Equipments</i> . . .	977
KLEINHANS, F. B.; Obituary	1219
KNIGHT, A. F.: Obituary	1219
KOPPER's oven	399
KRUESI, A. H., disc., <i>Fuel Economy Tests, and Unnecessary Losses in Firing Fuel Oils</i>	827
LAUER, C. N., disc., <i>Training Workmen in Habits of Industry and Cooperation</i>	1054
Lectures on engineering	621
LEWIS, W., <i>The Development of a High Speed Milling Cutter, with Inserted Blades, for High Powered Milling Machines</i> , 869; disc., 885; disc., <i>Efficiency Tests of Milling Machines and Milling Cutters</i> , 861; disc., <i>Interchangeable Involute Gear Tooth Systems</i>	940
Liquid Tachometers, AMASA TROWBRIDGE	519
DISCUSSION.	
WAITT, H. H.	519
REIST, H. G.	519
DURAND, PROF. W. F.	519
LITCHFIELD, N., <i>Spur Gearing on Heavy Railway Motor Equipments</i> , 967; disc.	975
Load tests, uniform and variable	783, 784
Locomotives, Articulated Compound, C. J. MELLIN	985
Tractive power	986
Comparison of types	987
LOGUE, C. H., disc., <i>Interchangeable Involute Gear Tooth Systems</i>	952
Loss of Fuel Weight in a Freshly Charged Producer, N. T. HARRINGTON	511
See Producer, etc.	
LOVELL, A., disc., <i>Articulated Compound Locomotives</i>	1024
LUCKE, DR. C. E., <i>A Continuous Gas Calorimeter</i> , 27; <i>Gas Engine and Producer Guarantees</i>	12
McBRIDE, THOS. C., <i>Air Leakage in Steam Condensers</i>	110
McCLELLAN, E. J., disc., <i>Clutches</i>	79
McGEE, W. J., <i>The Conservation of the Waters and Woods</i> , abstract of address.	15
McGOWAN, F. X.: Obituary	1220
Manufacture of Salt, G. B. WILLCOX	1065
Grainer plant	1065
Salt grainers of reinforced concrete	1067
Details of concrete grainers	1069
Rakers	1071
Belt conveyors	1076
Reciprocating conveyors	1077
Loading salt barrels	1080
MARCH, MONTHLY MEETING	13
MARKS, PROF. L. S., <i>The Horsepower, Friction Losses and Efficiencies of Gas and Oil Engines</i> , 423; disc., 433; disc., <i>The Total Heat of Saturated Steam</i>	760
MAXIM, HIRAM PERCY, disc., <i>Clutches</i>	102
MAY, MONTHLY MEETING	25

Measuring machine for journal friction.	PAGE
See <i>Journal Friction</i> , etc.	331
MEETINGS, MONTHLY, IN NEW YORK: Jan. 14, <i>Car Lighting</i> , R. M. DIXON, 11;	
Feb. 11, Formation Gas Power Section, 11; Mar. 10, <i>The Steam Path of the</i>	
<i>Turbine</i> , DR. C. P. STEINMETZ, 13; <i>Conservation, Natural Resources</i> , 13;	
May 12, <i>Clutches</i> , HENRY SOUTHER, 25; October 13, <i>Bituminous Producer</i>	
<i>Plants</i> , E. A. HARVEY, <i>Loss in Fuel Weight in a Freshly Charged Producer</i> ,	
N. T. HARRINGTON, 505; Nov. 10, <i>The High Powered Rifle</i> , etc., F. PHIL-	
LIPS, 505.	
MEIER, E. D., disc., <i>Carbonic Acid and its Storage</i> , 1177; disc., <i>The Slipping</i>	
<i>Point of Rolled Boiler Tube Joints</i>	1197
MELLIN, C. J., <i>Articulated Compound Locomotives</i> , 985; disc.	1018
Membership, honorary, conferring on ANDREW CARNEGIE.	5
Membership in the Society.	
Elections to, 120.	573
Summary of	VIII, IX
<i>Metal Cutting Tools without Clearance</i> , J. HARTNESS.	895
See <i>Cutting Tools</i> , etc.	
DISCUSSION.	
SUPLEE, H. H.	920
Closure.	920
<i>Method of Obtaining Ratios of Specific Heats of Vapors</i> , A. R. DODGE.	719
See <i>Specific Heat</i> , etc.	
DISCUSSION.	
DAVIS, DR. H. N.	735
MOSS, DR. S. A.	736
<i>Military Aeronautics, The Present Status of</i> , DR. G. O. SQUIER.	639
Aërostation.	642
Dirigible balloons, France.	642
“ “ England.	650
“ “ Germany.	652
“ “ United States.	657
Design of a dirigible balloon.	659
Resistance of air to projectile.	662
Analogy to airship.	662
Aërodynamic adjustments.	664
Aviation.	665
Aëroplanes.	665
Design of Aëroplanes.	668
Principle of reefing.	669
Best speed and angle of flight.	671
Stability and control.	673
Hydromechanic relations.	675
Skin friction in air.	677
Aërial locomotion in warfare.	680
Action of Hague Peace Conference.	680
Influence on military art.	681
Interior harbors.	684

Appendix No. I	PAGE
Signal corps specification	686
Appendix No. II	
Requirements for a dirigible balloon	689
MILLER, FRED, disc., <i>Clutches</i>	78
MILLER, F. J., disc., <i>Development of a High Speed Milling Cutter with Inserted Blades, etc.</i> , 885, 891; disc., <i>Efficiency Tests of Milling Machines and Milling Cutters</i>	859
MILLER, SPENCER, disc., <i>Conveying Materials</i>	233
Milling cutter with inserted blade	869
Milling cutters and milling machines, etc.	
See <i>Milling Machines, etc.</i>	837
<i>Milling Machines, High Powered, Development of a High Speed Milling Cutter with Inserted Blades</i> , W. LEWIS and W. H. TAYLOR	869
<i>Milling Machines and Milling Cutters, Efficiency Tests of</i> , A. L. DE LEEUW	837
Measure of machine tool performance	838
Specifications of milling machine tests	839
Power required to remove metal	843
" " for feed mechanism	847
Efficiency of driving mechanism	853
" cutters	855
MINOR, J. C., disc., <i>Carbonic Acid and its Storage</i>	1168
MOSELEY, PROF. A. W., disc., <i>The Engineer and the People</i>	635
MOSS, DR. S. A., disc., <i>Carbonic Acid and its Storage</i> , 1178; disc., <i>A Method of Obtaining Ratios of Specific Heats of Vapors</i> , 736; disc., <i>Some Pilot Tube Studies</i>	370
MOSSBERG, FRANK, disc., <i>Clutches</i>	83
MOULTROP, I. E., disc., <i>Fuel Economy Tests, and Unnecessary Losses in Firing Fuel Oils</i>	825
NASH, L. H., <i>Reminiscences of a Gas Engine Designer</i>	520
NEFF, ELMER H., disc., <i>Clutches</i>	90
Negatives, enlarged	1099
NICHOLS, O. F.: Obituary	1220
NISBET, D. F., disc., <i>Interchangeable Involute Gear Tooth Systems</i>	946
No-clearance tool, in cutting tools	902
NOVEMBER, MONTHLY MEETING	505
NUSIM, M., disc. <i>A Rational Method of Checking Conical Pistons for Stress</i>	328
OCTOBER, MONTHLY MEETING	505
Officers of the Society:	
• Election of	
List of	III
Oil Burning Electric Power Plant.	
See <i>Fuel Economy Tests, etc.</i>	775
<i>Oil and Gas Engines, the Horsepower, Friction Losses and Efficiencies of</i> , PROF. L. S. MARKS	423
Oil pressure regulation for uniform steam pressure	804

	PAGE
O'NEIL, F. W., disc., <i>Fuel Economy Tests, and Unnecessary Losses in Firing Fuel Oils</i>	827
ORROK, G. A., disc., <i>Some Pilot Tube Studies</i>	369
Otto oven	398
 PARKER, J. C., disc., <i>The By-Product Coke Oven</i> , 419; disc., <i>The Slipping Point of Rolled Boiler Tube Joints</i>	1190
PATTISON, MELVIN, disc., <i>Conveying Materials</i>	234
PEABODY, PROF. C. H., disc., <i>The Total Heat of Saturated Steam</i>	754
PEARSON, W. A.: Obituary	1221
PECK, S. B., <i>Continuous Conveying of Materials</i>	155
<i>See Conveying of Materials, Continuous.</i>	
PEIRCE, J. R., disc., <i>A Journal Friction Measuring Machine</i>	344
Performance of machine tool	838
PERRINE, F. A. C.: Obituary	1222
PHILIPS, F.: Obituary	1224
Photography, Contributions of, to our Knowledge of Stellar Evolution, PROF. JOHN A. BRASHEAR	108
<i>Photography, Industrial</i> , S. A. HAND	1087
Apparatus	1088
Preparation of subject	1089
Lighting and position	1092
Focusing	1093
Exposure	1096
Interiors	1097
Copying	1098
Enlarging negatives	1099
X-Ray photographs	1100
Development	1102
Printing	1103
<i>Physical Properties of Carbonic Acid and the Conditions of its Economic Storage for Transportation</i> , PROF. R. T. STEWART	1111
<i>See Carbonic Acid, etc.</i>	
DISCUSSION.	
MINOR, J. C., JR.	1168
STÜRCKE, H. E.	1171
CLARKE, G.	1173
THULLEN, L. H.	1174
MEIER, E. D.	1177
MOSS, DR. S. A.	1178
KENT, PROF. W.	1178
Closure	1179
PIERCE, C. D.: Obituary	1224
PIEZ, C., disc., <i>Training Workmen in Habits of Industry and Cooperation</i>	1053
<i>Piping, Identification of Power House by Colors</i> , WM. H. BRYAN	109
<i>Pistons, Conical, Rational Method of Checking for Stress</i> , PROF. GEO. H. SHEPARD	321
<i>See Conical Pistons, etc.</i>	

	PAGE
<i>Pitot Tube, Some Studies of</i> , PROF. W. B. GREGORY and PROF. E. W. SCHODER	351
Distribution of velocities and pressures in a 6-inch water pipe	351
Details of	355
Vertical traverse (Table 1)	360
Horizontal traverse (Table 2)	363
<i>Pitot Tube Studies, Some</i> , PROF. W. B. GREGORY and PROF. E. W. SCHODER	351
See <i>Pitot Tube, etc.</i>	
DISCUSSION.	
ORROK, G. A.	369
MOSS, DR. S. A.	370
EDDY, PROF. H. T.	371
Closure	372
<i>Plan for a Larger Coöperation between the Society and the General Public</i> ,	
M. L. COOKE,	617
See <i>Coöperation between the Society and Public, etc.</i>	
DISCUSSION.	
HUMPHREYS, DR. A. C.	628
WILLIAMS, DR. T.	629
GUTHRIE, HON. G. W.	631
TAYLOR, F. W.	631
HADLEY, DR. A. T.	632
DAY, F. M.	632
PORTER, H. F. J.	634
CHURCH, A. L.	635
MOSELEY, PROF. A. W.	635
DODGE, J. M.	635
SWASEY, A.	636
HUNT, C. W.	636
HUTTON, PROF. F. R.	636
SMITH, O.	636
Closure	637
<i>Polar Diagrams, Averaging Instrument for</i> , PROF. W. F. DURAND	1201
Description and mode of use	1201
POMEROY, L. R., disc., <i>Articulated Compound Locomotives</i>	1022
PORTER, CHAS. T., disc., <i>Comparison of Screw Thread Standards</i>	380
PORTER, H. F. J., disc., <i>The Engineer and the People</i>	634
<i>Portland Cement Plant, Conveying Machinery in</i> ,	
See <i>Conveying Machinery in the Portland Cement Plant</i>	
<i>Possibilities of the Gasolene Turbine</i> , PROF. F. C. WAGNER	520
- DISCUSSION.	
MOSS, DR. S. A.	520
LUCKE, DR. C. E.	520
POWELL, J.: Obituary	1225
<i>Power Plant Operation on Producer Gas</i> , G. M. S. TAIT	109
Power required by a machine tool to remove metal	843
<i>Present Status of Military Aëronautics</i> , by Dr. G. O. Squier	637
See <i>Military Aëronautics, etc.</i>	

Present Status of Military Aeronautics—Continued

	PAGE
DISCUSSION	
HUMPHREYS, DR. W. J.	717
BRASHEAR, PROF. J. A.	718
FOWLER, G. L.	719
Closure.	721
President of the United States, letter from.	14
Presidents of the Society, Past, List of.	IV
Pressure angle in involute gear tooth systems.	922
Pressure regulator for carbonic acid manufacture.	1147
Pressures and velocities in 6-in. water pipes.	351
PRITCHETT, HENRY S., <i>Relation of the Engineer to the Body Politic</i> , abstract of address.	23
<i>Producer, Loss of Fuel Weight in a Freshly Charged</i> , N. T. HARRINGTON.	511
Combustible and moisture.	513
Loss of weight of charge.	513
Coal analysis and results.	515
 <i>Railway Motor Equipment, Heavy, Use of Spur Gearing on</i> , N. LITCHFIELD.	967
Rankine and Clausius cycles compared.	821
RATHBUN, G. J., disc., <i>The By-Product Coke Oven</i>	420
<i>Rational Method of Checking Conical Pistons for Stress</i> , PROF. GEO. H. SHEP- ARD.	321
See <i>Conical Pistons, etc.</i>	
DISCUSSION.	
NUSIM, M.	328
Closure.	329
RAUTENSTRAUCH, PROF. W., disc., <i>Interchangeable Involute Gear Tooth Systems</i>	951
Reciprocating conveyors.	1077
<i>Relation of the Engineer to the Body Politic</i> , HENRY S. PRITCHETT, abstract of address.	23
<i>Reminiscences of a Gas Engine Designer</i> , L. H. NASH.	520
REPORTS, ANNUAL, OF COUNCIL AND COMMITTEES—1908. See ANNUAL REPORTS, ETC.	537
Retort oven.	387
RICE, CHARLES D., disc., <i>Clutches</i>	94
ROOSEVELT, THEODORE, letter from.	14
Rothberg oven.	399
 Salt grainers of reinforced concrete.	1067
<i>Salt Manufacture</i> , G. B. WILLCOX.	1065
See <i>Manufacture of Salt</i>	
DISCUSSION.	
HUTCHINGS, C. F.	1082
Closure.	1085
Salt rakers.	1071
SANDERS, L., disc., <i>Training Workmen in Habits of Industry and Cooperation</i>	1050
SARGENT, DR. G. W., disc., <i>Spur Gearing on Heavy Railway Motor Equipments</i>	980

Saturated Steam:	PAGE
Regnault's formula	741
Method of finding total heat curve	743
Evaluation of, H_{212}	748
Davis' formula	749, 753
<i>Saturated Steam, The Total Heat of</i> , DR. H. N. DAVIS	741
Evaluation of H_{212} (Table 1)	748
New formula compared with standard values (Table 2)	749
Summary and total heat formula	753
SCHAEFER, E. F.: Obituary	1225
SCHEEL, H. V. R., disc., <i>Training Workmen in Habits of Industry and Cooperation</i>	1049
SCHODER, PROF. E. W., <i>Some Pitot Tube Studies</i> , 351; disc	369
<i>Screw Thread Standards, Comparison of</i> , AMASA TROWBRIDGE	373
Semet-Solvay oven	399
SEWALL, M. W., disc., <i>The Slipping Point of Rolled Boiler Tube Joints</i>	1197
SHEPARD, PROF. GEO. H., <i>A Rational Method of Checking Conical Pistons for Stress</i> , 321; disc	328
<i>Simple Method of Cleaning Gas Conduits</i> , W. D. MOUNT	437
See <i>Gas Conduits, etc.</i>	
<i>Slipping Point of Rolled Boiler Tube Joints</i> , PROF. O. P. HOOD and PROF. G. L. CHRISTENSEN	1181
See <i>Boiler Tube Joints, etc.</i>	
DISCUSSION.	
PARKER, J. C.	1194
BENJAMIN, PROF. C. H.	1196
MEIER, E. D.	1197
SEWALL, M. W.	1197
Closure	1198
SMITH, C. H. L.: Obituary	1226
SMITH, O., disc., <i>Development of a High Speed Milling Cutter with Inserted Blades, etc.</i> ; 885, 888; disc., <i>Interchangeable Involute Gear Tooth Systems</i> 950, disc., <i>The Engineer and the People</i>	636
SOULE, R. H.: Obituary	1226
SOUTHER, HENRY, <i>Clutches</i> , 39; disc	71
Specifications of milling machine tests	839
Specifications of signal corps and requirements for a dirigible balloon	686, 689
Specific heat of superheated steam, at and near saturation	280
<i>Specific Heats of Vapors, A Method of Obtaining Ratios of</i> , A. R. DODGE	723
Description of apparatus	726
Method of making tests	729
Speed, angle, stability and control of Aëroplanes	671, 673
SPRING MEETING.	
See DETROIT MEETING.	
<i>Spur Gearing on Heavy Railway Motor Equipments</i> , N. LITCHFIELD	967
See <i>Railway Motor Equipment, etc.</i>	
DISCUSSION.	
HENSHAW, F. V.	975
THOMSON, J.	976

<i>Spur Gearing—Continued</i>		PAGE
KISSICK, J. JR.	.....	977
SARGENT, DR. G. W.	.....	980
FURMAN, PROF. F. DE R.	.....	982
Closure.	.....	984
SQUIER, DR. G. O., <i>The Present Status of Military Aeronautics</i> , 639; disc.	.....	713
Standardization, in the training of workmen	.....	1043
Standpipe in water-power plants.	.....	447
Stars, photography of, PROF. JOHN A. BRASHEAR	.....	108
<i>Steam Path of the Turbine</i> , The, DR. C. P. STEINMETZ	.....	13
Steam-to-burner regulator	.....	807
STEWART, PROF. R. T. <i>The Physical Properties of Carbonic Acid and the Conditions of its Economic Storage for Transportation</i> , 1111; disc., 1168; disc. <i>Development of a High Speed Milling Cutter with Inserted Blades</i> , etc.	.....	889, 890
STIVERS, W. D.: Obituary	.....	1227
STONE, J.: Obituary	.....	1228
Stress, cutting, separating and quivering in cutting tools	.....	898, 890
STÜRCKE, H. E., disc., <i>Carbonic Acid and its Storage</i>	.....	1171
Superheated Steam.		
Critical state of water	.....	282
Higher range of superheat	.....	286
Specific heat of	.....	280
Initial	.....	284
Determining curves	.....	288
Results and various data	.....	289, 296
<i>Superheated Steam, Thermal Properties of</i> , PROF. R. C. H. HECK	.....	277
Specific heat, at and near saturation	.....	280
Critical state of water	.....	282
Initial specific heat	.....	284
Higher range of superheat	.....	286
Determining curves	.....	288
Results	.....	289
Various data	.....	296
Summary	.....	298
SUPLEE, H. H., disc., <i>The Horse power, Friction Losses and Efficiencies of Gas and Oil Engines</i> , 433; disc., <i>Thermal Properties of Superheated Steam</i> , 309; disc., <i>Industrial Photography</i> , 1106, disc., <i>Metal Cutting Tools without Clearance</i>	.....	920
<i>Surge Tank in Water-Power Plants</i> , The, RAYMOND D. JOHNSON, 443, See <i>Water Power-Plants</i> , etc.		
DISCUSSION		
HARZA, L. F.	.....	474
CHURCH, PROF. I. P.	.....	484
Closure	.....	494
SWAIN, PROF. GEO. F., <i>Conservation of Stream Flow, Water Power and Navigation</i> , abstract of address	.....	20
SWASEY, A., disc., <i>The Engineer and the People</i> , 636; disc., <i>Industrial Photography</i>	.....	1109

	PAGE
TABOR, H.: Obituary	1228
TAIT, G. M. S., <i>Power Plant Operations on Producer Gas</i>	109
TAYLOR, F. W., disc., <i>Development of a High Speed Milling Cutter, with Inserted Blades, etc.</i> , 886, 889, 890; disc., <i>Efficiency Tests of Milling Machines and Milling Cutters</i> , 863; disc., <i>The Engineer and the People</i>	631
TAYLOR, W. H., <i>The Development of a High Speed Milling Cutter, with Inserted Blades, for High Powered Milling Machines</i> , 869; disc., 885; disc., <i>Efficiency Tests of Milling Machines and Milling Cutters</i>	861
<i>Tests on Friction Clutches for Power Transmission</i> , PROF. R. G. DUKES	521
<i>Thermal Properties of Superheated Steam, The</i> , PROF. R. C. H. HECK	277
See <i>Superheated Steam, etc.</i>	
DISCUSSION.	
EDDY, DR. H. T.	299
ENNIS, PROF. W. D.	309
DAVIS, DR. H. N.	314
THOMAS, PROF. C. C.	318
SUPLEE, H. H.	309
Closure	318
THOMAS, PROF. C. C., disc., <i>Thermal Properties of Superheated Steam</i> , 318; disc., <i>The Total Heat of Saturated Steam</i>	766
THOMSON, J., disc., <i>Spur Gearing on Heavy Railway Motor Equipments</i>	976
Three states of carbonic acid	1127
THULLEN, L. H., disc., <i>Carbonic Acid and its Storage</i>	1174
TITCOMB, G. E., <i>Hoisting and Conveying Machinery</i>	123
See <i>Hoisting and Conveying Machinery</i>	
TOMLINSON, C. J., <i>Conveying Machinery in the Portland Cement Plant</i>	213
<i>Total Heat of Saturated Steam</i> , DR. H. N. DAVIS	737
See <i>Saturated Steam, etc.</i>	
DISCUSSION.	
PEABODY, PROF. C. H.	754
ENNIS, PROF. W. D.	756
HECK, PROF. R. C. H.	757
MARKS, PROF. L. S.	760
HOLLIS, PROF. I. N.	766
THOMAS, PROF. C. C.	766
Closure	770
Traction power of articulated compound locomotives	985
<i>Training Workmen in Habits of Industry and Coöperation</i> , H. L. GANTT	1037
See <i>Workmen, etc.</i>	
DISCUSSION.	
HUMPHREYS, DR. A. C.	1049
SCHEEL, H. V. R.	1049
KELLY, T. F.	1050
HATHAWAY, H. K.	1051
PIEZ, C.	1053
LAUER, C. N.	1054
SANDERS, L.	1054
JURGENSEN, J. C.	1056
HALL, W. E.	1058

<i>Training Workmen--Continued</i>	PAGE
EMERSON, H.	1060
HIGGINS, M. P.	1060
KENT, PROF. W.	1061
DODGE, J. M.	1062
Closure	1062
TROWBRIDGE, AMASA, <i>Comparison of Screw Thread Standards</i> , 373; disc.	375
 <i>Unnecessary Losses in Firing Fuel Oil and an Automatic System for their Elimination</i> , C. R. WEYMOUTH	797
See <i>Fuel Oil</i> , etc.	
DISCUSSION on above paper and on <i>Fuel Economy Tests</i> .	
BARRUS, G. H.	819
KENT, PROF. W.	820
ENNIS, PROF. W. D.	821
BIBBINS, J. R.	822
MOULTROP, I. E.	825
KRUESI, A. H.	827
O'NEIL, F. W.	827
GREGORY, PROF. W. B.	828
Closure	829
 VAUCLAIN, S. M., disc., <i>Articulated Compound Locomotives</i>	1026
Velocities and pressures in 6-in. water pipes	351
 WALDRON, FREDK. A., disc., <i>Clutches</i>	100
WARMAN, F. C.: Obituary	1229
Water Power	
Standpipe	447
Governing	449
Differential regulator	457
<i>Water-Power Plants, The Surge Tank in</i> , RAYMOND D. JOHNSON	443
Function of a standpipe	447
Result of turbine governor's efforts	449
Mathematical analysis	451
Computations involving friction	454
Differential regulator	457
Use of compressed air	461
WEBB, PROF. J. B., disc., <i>Development of a High Speed Milling Cutter, with Inserted Blades</i> , etc.	891
WEBBER, S.: Obituary	1230
WELLBAUM, A. E.: Obituary	1231
WEST, G. W.: Obituary	1232
WEYMOUTH, C. R., <i>Fuel Economy Tests at a Large Oil Burning Electric Power Plant having Steam Engine Prime Movers</i> , 775; <i>Unnecessary Losses in Firing Fuel Oil and an Automatic System for their Elimination</i>	797
WILLCOX, GEO. B., disc., <i>Conveying Materials</i> 239; <i>Salt Manufacture</i> 1065; disc.	1082
WILLIAMS, DR. T., disc., <i>The Engineer and the People</i>	629

	PAGE
WOOD, A. C., and F. W. DEAN, <i>Economy Tests of High Speed Engines</i>	109
WOODBURY, DR. C. J. H., disc., <i>Industrial Photography</i>	1103, 1107
<i>Workmen, Training, in Habits of Industry and Coöperation</i> , H. L. GANTT . . .	1037
Habits of industry	1037
" " work	1040
Bosses	1042
Task setting	1042
Standardization	1043
Obstacles	1044
Day work and piece work	1045
Coöperation	1046
Training help	1047
Method of introduction	1047
Moral training	1048